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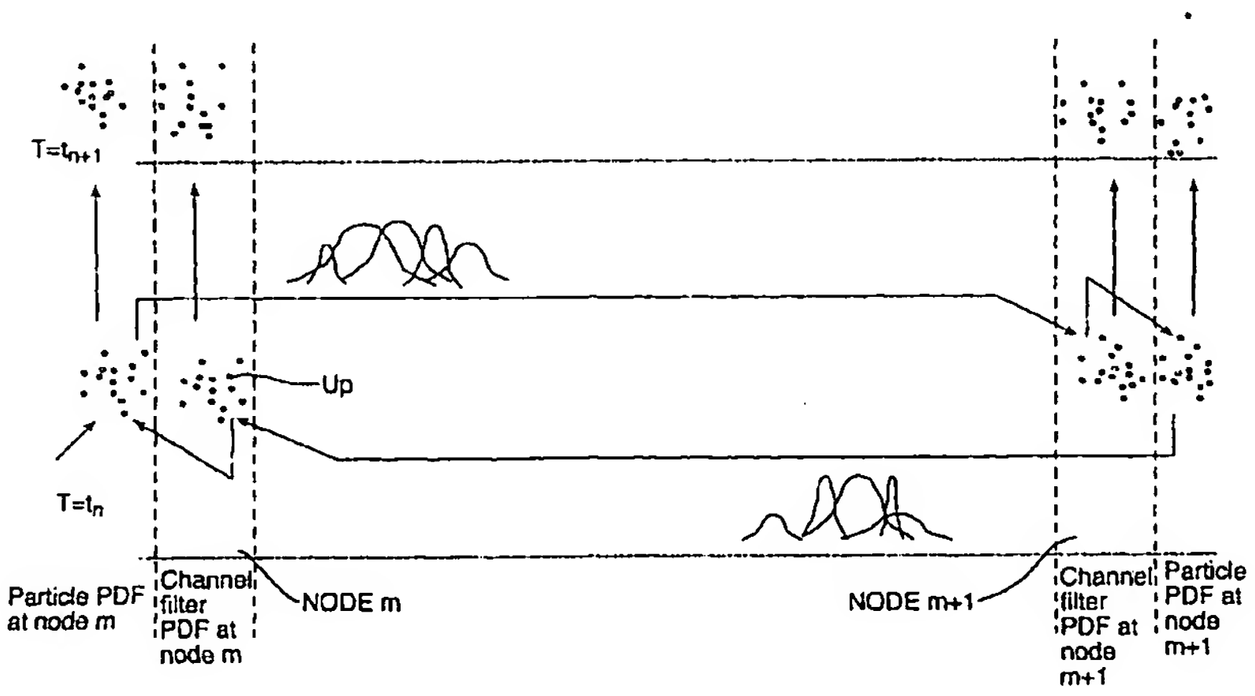

(57) Abstract: A method for estimating a system state, for example an aircraft trajectory, in a decentralised network having a plurality of nodes, each node having means for receiving and sending information and means for processing information, and each node being connected to neighbouring nodes of the network, the method comprising, at each node: (i) maintaining a set of particles and associated weights, which represent an estimate of the system state, (ii) representing the estimated system state as a mixture of Gaussian distributions in a channel filter, and communicating the mixture to neighbouring nodes, and (iii) a neighbouring node receiving the mixture in a channel filter that contains a similar Gaussian representation of its own estimate of system state, and dividing the incoming mixture by the existing mixture, for updating the estimate of the system state that is maintained at the node.

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